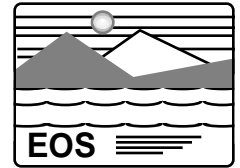# SPECIAL OPERATIONS

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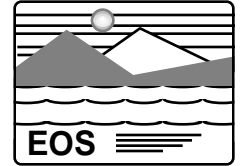**E-mail: nping@eos.hitc.com**

Spacecraft Maneuvers
(L+30 Days)

- **Execute flight dynamics tools to trend spacecraft orbit parameters**

- **Estimate**

    - **Date and time for maneuver**

    - **Thruster parameters**

- **Present information to FOD and Project Scientist**

- **Post estimated maneuver date and time to Timeline**

- **Once date and time are confirmed**

    - **Schedule TDRS resources**

    - **Schedule spacecraft and instrument configuration activities**

    - **Prepare required uplink products**
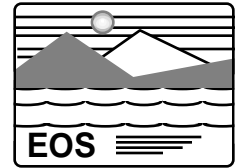
    - **Prepare maneuver script**

- **Execute**

    - **Maneuver script and uplinks on SSIM**

    - **Spacecraft and instrument configuration activities**

    - **Maneuver on spacecraft**

- **Reconfigure instruments**

- **Analyze post-maneuver spacecraft telemetry performance parameters**

Safehold Recovery

- **On identification of safehold, notify IOTs and FOT engineers**
  - **Safehold investigation team formed**
  - **Online FOT executes contingency operations process**
- **On identification of safehold resolution and recovery implementation**
  - **Provide estimated time of spacecraft recovery to FOD, Project Scientist, and IOTs**
  - **Provide estimated time for IOTs to send in science activities.**
  - **Provide estimated time of uplink of new stored commands**
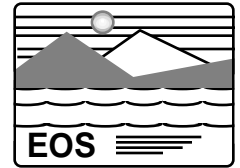 - **Provide estimated time of return to science operations**

Safehold Recovery (Cont'd)
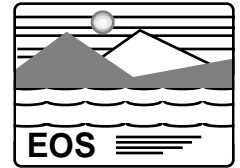
- **Execute recovery plan, update above estimates as required (includes spacecraft and instruments; IOTs interact with FOT)**

- **Create new stored command loads to return instrument to science collection configuration**

Spacecraft Sensor Calibrations
(Preparation)

EOS

- **Use FDD-provided tools to trend sensor performance**

- **Report performance changes to FDD and estimate need for calibration**

- **Analyze mission Timeline for calibration opportunity**

- **Send to FOD and Project Scientist the estimated impact to science plan**

- **Schedule TDRSS resources, as appropriate**
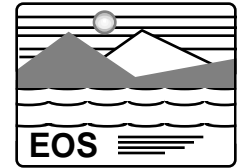
- **Prepare appropriate maneuver script and validate on SSIM**
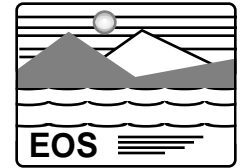
- **Execute calibration script and maneuvers**

- **Collect measurement data**

- **Compute and uplink calibration parameters**

- **Monitor system performance for correctness and side effects**

- **Cooperative effort between FOT and FDD**

Instrument Calibrations

- **Preparation**
    - **Receive calibration notification from IOT, informing the FOT (and FOD and Project Scientist, as appropriate) of**
        - » **Estimated date and time for calibration**
        - » **Additional TDRSS support requirements**
    - **Coordinate with IOTs as required**
    - **Observe calibration activity insertion onto Timeline**
    - **Review appropriate command procedures with IOT**
- **Execution**
    - **Execute calibration commands and observe telemetry (FOT and IOT)**
   - **Uplink new parameter loads, as required (FOT)**

Flight Software Modifications
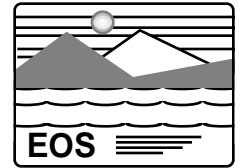
- **Report defects or new requirements to Code 512**

- **Review new implementation via walkthrough**

- **Prepare uplink procedure**

- **Test uplink procedure and code on SSIM for correctness**

- **Schedule appropriate TDRSS resources**

- **Uplink code**

- **Monitor telemetry for correct performance and side effects**

FOT Issues and Concerns
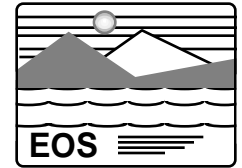
- **Need an integrated and empowered forum to work issues**

- **Changing space-to-ground communications**

  - **DSN support no longer available**

  - **Transition from TDRSS to ground stations post 2000**

- **SN support: two contacts or three per orbit**

- **Delivery mechanism of FDD products to launch site needs to be worked**